Amendments to the Claims

Please cancel claims 1-29 and 42-51 without disclaimer or prejudice to Applicants' right to pursue the subject matter of these claims in this or a related application.

Pleases amend claims 30, 32, 33, 62-65, 68-71, 74, 76 and 77 under the provisions of 37 C.F.R. §1.121, as set forth in the Federal Register on June 30, 2003 as follows:

Claims 1-29. (Canceled)

30. (Currently Amended) A method for identifying a compound that modulates signal transduction in a cell, comprising:

a) contacting a cell that expresses an Activator of G protein Signaling ("AGS") protein ~~AGS protein~~ with a test compound;

b) determining the effect of the test compound on the activity of the AGS protein; and

c) identifying the test compound as a modulator of signal transduction based on the ability of the compound to modulate the activity of the AGS protein in the cell.

31. (Original) The method of claim 30, wherein the AGS protein comprises an amino acid sequence having at least 97% identity to SEQ ID NO:2 and stimulates G protein activity in a receptor-independent manner.

32. (Currently Amended) The method of claim 30, wherein the AGS protein is isolated from human cells.

33. (Currently Amended) The method of claim 30, wherein the AGS protein comprises ~~the amino acid~~ amino acids having the sequence of SEQ ID NO:2.

34. (Original) The method of claim 30, wherein the cell has been engineered to express the AGS protein by introducing into the cell an expression vector encoding the AGS protein.

35. (Original) The method of claim 30, wherein the cell has

further been engineered to express a G protein α subunit.

36. (Original) The method of claim 30, wherein the cell is a yeast cell that has been engineered to express a mammalian or chimeric G protein α subunit and the effect of the test compound on the activity of the AGS protein is determined by monitoring a pheromone response pathway in the yeast cells.

37. (Original) The method of claim 36, wherein the yeast cell has been engineered to express a Gpa1-Gαi2 chimeric G protein α subunit.

38. (Original) The method of claim 36, wherein the pheromone response pathway in the yeast cells is monitored by measuring the activity of a pheromone responsive promoter in the yeast cells.

39. (Original) The method of claim 30, wherein the effect of the test compound on the activity of the AGS protein is determined by monitoring the ability of the test compound to bind to the AGS protein.

40. (Original) The method of claim 30, wherein the effect of the test compound on the activity of the AGS protein is determined by monitoring the ability of the test compound to modulate the interaction of the AGS protein with a target molecule.

41. (Original) The method of claim 40, wherein the target molecule is a G protein.

Claims 42-51. (Canceled)

52. (Original) A method for detecting the presence of an AGS protein in a biological sample comprising contacting a biological sample with an agent capable of detecting the AGS protein or mRNA such that the presence of the AGS protein is detected in the biological sample.

53. (Original) The method of claim 52, wherein the agent is a labeled or labelable nucleic acid probe capable of hybridizing to an AGS mRNA.

54. (Original) The method of claim 52, wherein the agent is a labeled or labelable antibody capable of specifically binding to an AGS protein.

55. (Original) A method for identifying a compound that activates a signal transduction pathway in a cell, said method comprising,

a) providing a cell that undergoes a measurable change when the signal transduction pathway is activated;

b) contacting the cell with a test compound; and

c) determining if the test compound causes a measurable change to thereby identify the test compound as a modulator of the signal transduction pathway.

56. (Original) The method of claim 55, wherein said signal transduction pathway is a G protein signaling pathway.

57. (Original) The method of claim 56, wherein said cell is a yeast cell.

58. (Original) The method of claim 57, wherein said G protein signaling pathway is the yeast pheromone response pathway.

59. (Original) The method of claim 58, wherein said compound is a polypeptide encoded by a nucleic acid molecule.

60. (Original) The method of claim 59, wherein said nucleic acid comprises a nucleotide sequence having at least 70% identity to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3.

61. (Original) The method of claim 59, wherein said nucleic acid comprises a nucleotide sequence having at least 80% identity to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3.

62. (Currently Amended) The method of claim 59, wherein said nucleic acid comprises nucleotides having a nucleotide sequence having at least 90% identity to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3.

63. (Currently Amended) The method of claim 59, wherein said nucleic acid comprises nucleotides having a nucleotide sequence having at least 95% identity to the nucleotide sequence of SEQ ID NO:1 or SEQ ID NO:3.

64. (Currently Amended) The method of claim 59, wherein said nucleic acid comprises nucleotides having the nucleotide sequence of SEQ ID NO:1.

65. (Currently Amended) The method of claim 59, wherein said nucleic acid comprises nucleotides having the nucleotide sequence of SEQ ID NO:3.

66. (Original) The method of claim 59, wherein said polypeptide activates G protein signaling in a G protein coupled-receptor independent manner.

67. (Original) The method of claim 59, wherein said nucleic acid comprises a nucleotide sequence which is a human.

68. (Currently Amended) The method of claim 59, wherein said polypeptide comprises ~~an amino acid~~ amino acids having a sequence having at least 97% identity to the amino acid sequence of SEQ ID NO:2.

69. (Currently Amended) The method of claim 59, wherein the polypeptide comprises ~~an amino acid~~ amino acids having a sequence having at least 98% identity to the amino acid sequence of SEQ ID NO:2.

70. (Currently Amended) The method of claim 59, wherein the polypeptide comprises ~~an amino acid~~ amino acids having a sequence having at least 99% identity to the amino acid sequence of SEQ ID NO:2.

71. (Currently Amended) The method of claim 59, wherein the polypeptide comprises ~~the amino acid~~ amino acids having a sequence of SEQ ID NO:2.

72. (Original) The method of claim 30, wherein the compound is a nucleic acid encoding a polypeptide capable of inhibiting the activity of the AGS protein.

73. (Original) The method of claim 72, wherein said nucleic acid comprises the sequence provided in SEQ ID NO:24.

74. (Currently Amended) The method of claim 72, wherein said nucleic acid encodes the polypeptide having an amino acid sequence provided in SEQ ID NO:25.

75. (Original) The method of claim 30, wherein the cell further comprises a nucleic acid encoding an inhibitor of the AGS protein.

76. (Currently Amended) The method of claim 75, wherein said nucleic acid comprises nucleotides having the sequence provided in SEQ ID NO:24.

77. (Currently Amended) The method of claim 75, wherein said nucleic acid encodes the polypeptide having an amino acid sequence provided in SEQ ID NO: 25.

78. (Original) The method of claim 75, wherein said ability of the test compound to modulate the activity of the AGS protein indicates that the test compound is a modulator of the inhibitor of the AGS protein.